SEEC

Strategic Environmental & Engineering Consulting

Stage 1 & Stage 2 Contamination Assessment:

Lot 126 DP263356, Anembo Street, Moss Vale, NSW

Prepared by:

Mark Passfield
SEEC Reference 12000191- CA STAGE 2-01

Date: 29th April 2014

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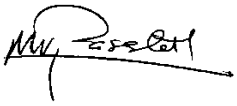
Document Certification

This report has been developed based on agreed requirements as understood by SEEC at the time of investigation. It applies only to a specific task on the nominated lands. Other interpretations should not be made, including changes in scale or application to other projects.
Any recommendations contained in this report are based on an honest appraisal of the opportunities and constraints that existed at the site at the time of investigation, subject to the limited scope and resources available. Within the confines of the above statements and to the best of my knowledge, this report does not contain any incomplete or misleading information.



Mark Passfield
Director
SEEC
29th April 2014

Document Table

Version	Author	Reviewer	Date
Stage 1 DRAFT	MP	NL	26 March 2013
Stage 1 Final	MP	client	10th April 2013
Stage 2 DRAFT	MP	NL	24th April 2014
Stage 2 Final	MP	Client	29th April 2014

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EXECUTIVE SUMMARY

This Contamination Assessment has been requested by Wingecarribee Shire Council. Required to accompany an application to re-zone Lot 126 DP263356 (The 'Subject Site') to allow residential development.

The site has never been developed but appears to have had some earthmoving activity on it in about 1979. It appears that a small quarry was excavated at that time in the far south east part of the site. It also appears there has been (probably un-approved) vehicular access to that quarry site during subsequent years; up to at least 1989. The initial site inspection suggested that land immediately downslope of the quarry area might be disturbed from its natural state.

Given the attraction that old quarries have for illegal Fly-Tipping we considered there was a risk that the quarry and land immediately downslope could have been used for illegal filling or waste disposal and, therefore, there was a risk of contamination.

Therefore, SEEC were commissioned to undertake a Stage 2 Contamination Assessment concentrating on the area of the former quarry. Ten test pits were dug in this area. The aim was to identify any waste or fill that could have been placed on the site. If either was found, soil samples were to be taken for contamination assessment. Concentrations of any contaminants were to be compared with the Health Investigation Levels for Class A Land (residential with open soil access) given in NEPM (2013). If any result exceeded the relevant HIL further investigation would be warranted.

The Stage 2 Assessment identified that the quarry face comprises natural material (basalt cobbles in a minor soil matrix) and that the quarry floor, although disturbed, generally consists of locally-sourced excavated natural material (ENM). Only minor quantities of waste were found, almost entirely confined to the surface but some minor amount in TP7 (only). Some pieces of cement pipe were also found at the surface.

To rule-out the risk that waste material could have been placed on the quarry floor, contaminated it, and since have been removed, we sampled near-surface soils from the test pits dug in that area. The samples were tested for a suite of contaminants that might be expected from such activity. The results of that testing were negative; no significant concentrations of contaminants were found.

Within the limitations described in Section 3 we conclude that the site is not contaminated and is suitable for its intended purpose as residential land.

1 Section 1 – Preliminary Contamination Assessment

1.1 Scope of Work

Strategic Environmental and Engineering Consulting (SEEC) have been commissioned by Wingecarribee Shire Council to prepare this *Stage 1 Preliminary Contamination Assessment*. It is required to accompany an application to rezone Lot 126 DP 263356 (The 'Subject Site', Figure 1) to permit residential development.

The aim of this *Stage 1 Preliminary Contamination Assessment* is to:

- Identify any past and present potentially contaminating activities;
- Identify potential contamination types;
- Discuss the site condition;
- Provide a preliminary assessment of site contamination; and
- Assess the need for further investigations.

This Assessment has been undertaken and documented following the requirements set out in *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 2000).

Figure 1 - Site Location

1.2 Site Identification and Zoning

The site is identified as Lot 126 DP263356. It is owned by Wingecarribee Shire Council and is zoned RE1 – Public Recreation.

1.3 Proposed Development

It is proposed to re-zone the land to enable residential development.

1.4 Site History

1.4.1 Sources of information

A summary of the site's history has been compiled below. This information has been sourced from:

- Historical aerial photography (1949, 1969, 1989, 1997) available from the NSW Government: *Land and Property Information* (A division of the Department of Finance and Services).
- Recent (2006) aerial photography available from Google Earth.
- Section 149 Council Certificate
- Council File number PF1227 and information therein.

1.4.2 Documented History

The site is currently owned by Wingecarribee Shire Council. It was previously owned by the Housing Commission who appeared to have acquired it in 1920. It formed a parcel of land that included other properties: Lots 7, 8 and 29 and Section 3 DP975386 and B/158739 that were also owned by the Housing Commission. Parts of these lots were used by Wingecarribee Shire Council as a landfill for a period of about 42 years up to 1965 (i.e from about 1923). The landfill utilised a previous quarry and resulted in garbage being placed up to 15 m deep.

In 1998 Council commissioned Woodward Clyde to prepare an environmental assessment of the former landfill site. They identified the landfill site was contained wholly on Lots 7, 8 and 29 and Section 3 DP975386 and B/158739 and that its presence was unlikely to pose a hazard to residential developments on Anembo and Anulka Streets or Berrima Road. Woodward Clyde did not identify any former landfill works on Lot 126 DP263356 (Figure 2).

The quarry was closed in November 1964 and fenced in 1965 however it appears it was still used for some time after that for car body and machinery disposal. It was backfilled and covered with soil in the 1970s.

A Section 149 certificate was obtained for the site. From that certificate it is determined that the site is not noted as 'significantly contaminated' and is not subject of a Management Order under the Contaminated Land Management Act (1997). There have been no Land Use Applications made on the property since 2008.

1.4.3 Aerial Photography

Figures 3 to 5 contain extracts from aerial photographs taken in (1949, 1969, 1979, 1989, 1997 and 2006. The photographs were supplied by the NSW Government: *Land and Property Information* (a division of the Department of Finance and Services). The 2006 aerial photograph is from Google Earth ©.

Inspection of these photographs shows:

- 1949 – The quarry is clearly shown on Lots 7, 8 and 29 and Section 3 DP975386 and B/158739 but the use of it as a landfill is not. There could have been access to the quarry from Watson Road. There is no disturbance of the subject site.
- 1969 - The quarry is clearly shown on Lots 7, 8 and 29 and Section 3 DP975386 and B/158739 but the use of it as a landfill is not. There is access to the quarry from Watson Road. There is no disturbance of the subject site.
- 1979 – The quarry/landfill appears to have been filled and capped. There is some disturbance in the north of the subject site. It appears associated with the construction of Anembo Street. There are informal tracks from the Anembo Street earthworks site to the former quarry on the subject site.
- 1989 – Anembo Street is being developed and the disturbance on the subject site appears to have been rehabilitated. There is a minor track from Anembo Street onto the subject site.
- 1997 - There are two minor tracks onto the subject site from Anembo Street and Berrima Street. They converge at about the quarry site.
- 2006 – The subject site is undeveloped and well vegetated. There are no clear tracks onto it from surrounding roads.

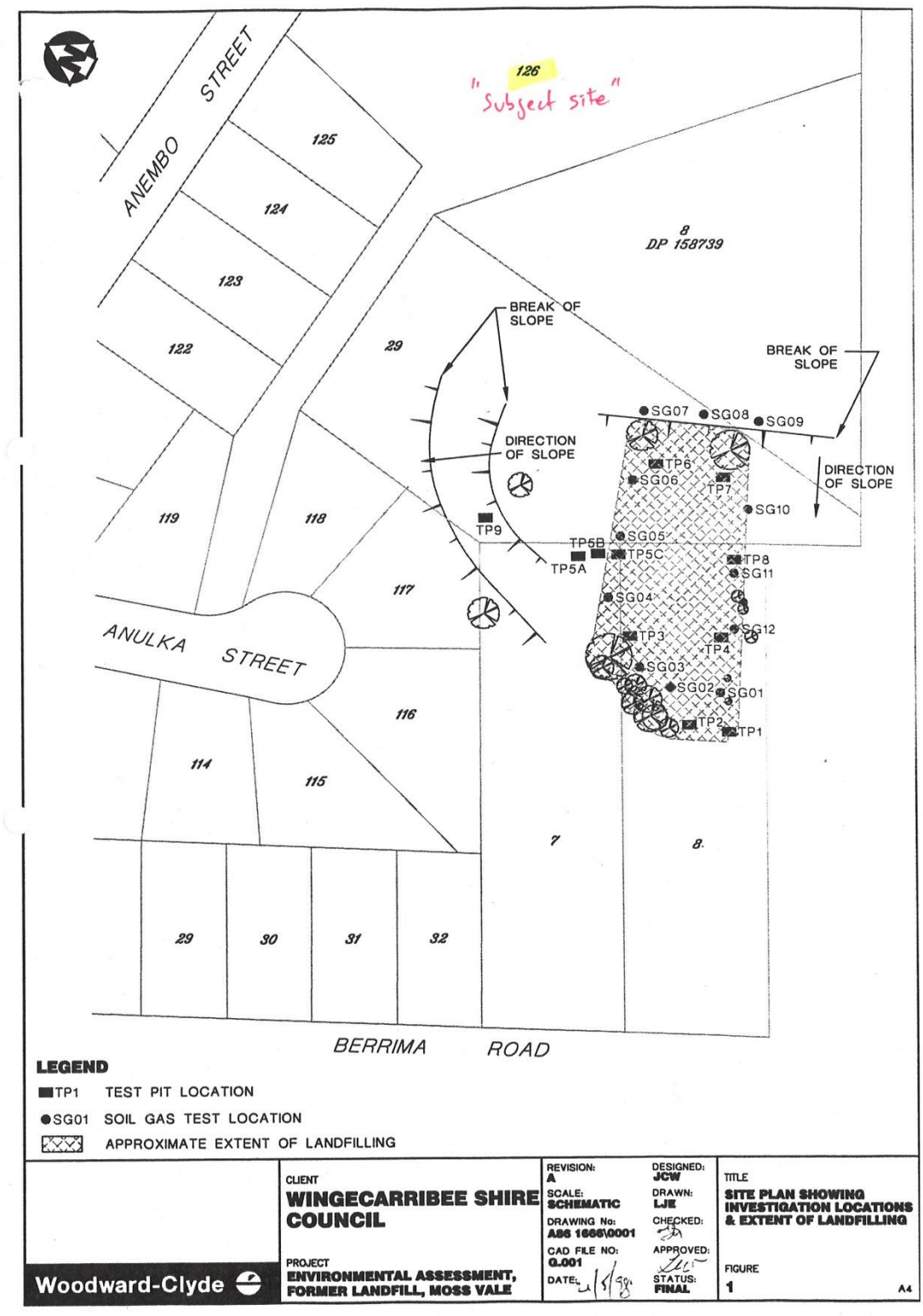
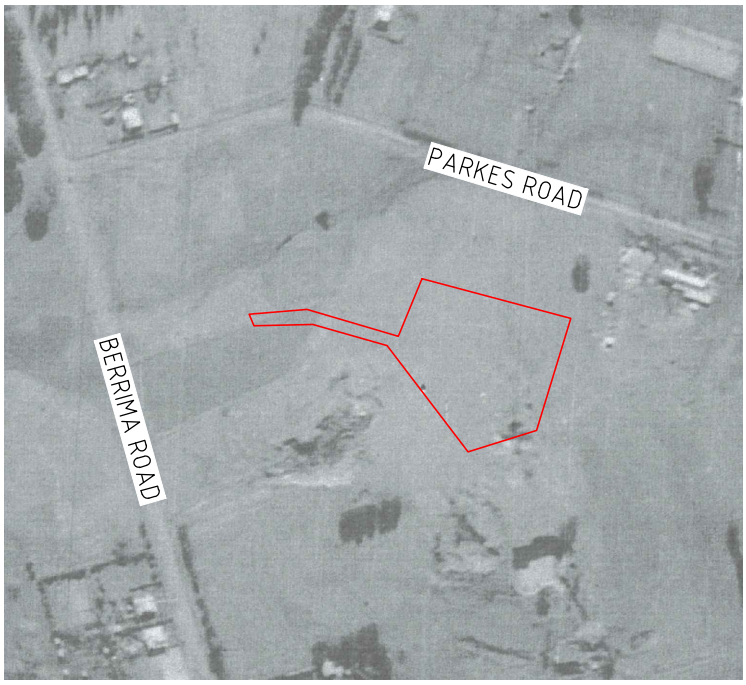
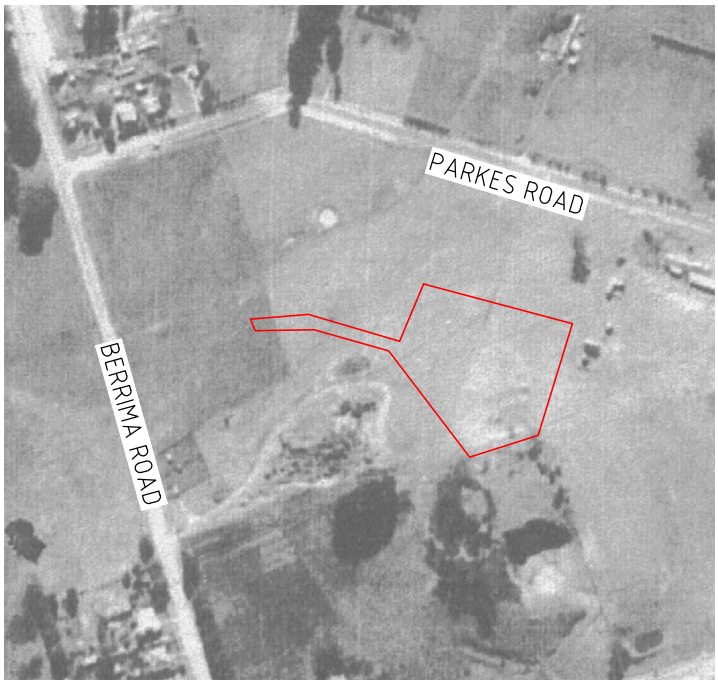


Figure 2 - Extent of Landfilling (Woodward Clyde). The subject site is unaffected.



1949



1969

0 25 50 75 100 125m

Scale: 1:5000 (A4 SHEET)

REV	DATE	BY	APP.
C	23/04/14	M.P.	M.P.
B	11/04/13	M.P.	M.P.
A	26/03/13	M.P.	M.P.

North

DRAWING STATUS	
DESIGN BY	M.P.
DRAWN BY	N.L.
FINAL APPROVAL	M.P.
SCALE: (on A4 Original)	1:5000

FINAL

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PROJECT TITLE
LOT 26 DP 263356
ANEMBO STREET
MOSS VALE NSW

DRAWING TITLE
HISTORICAL AERIAL PHOTOS
1949 AND 1969

PROJECT NO.	SHEET NO.	REV
12000191	FIGURE 3	A

Plot Date: 23 April 2014 12:10:57 PM

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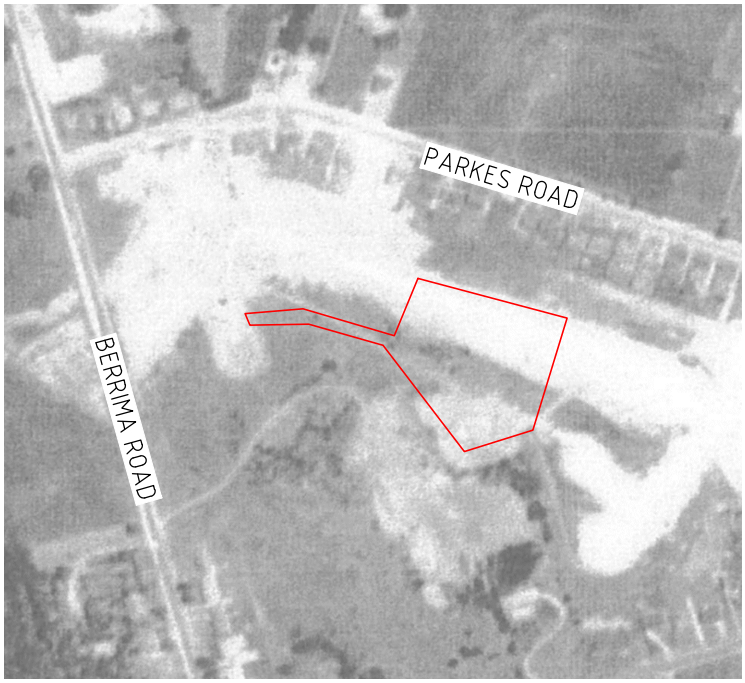
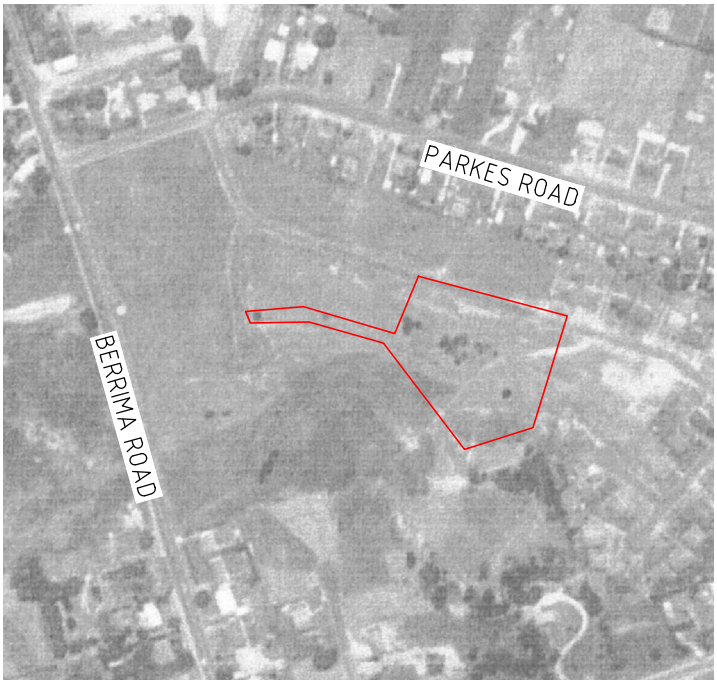


1979



1989

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B	11/04/13	M.P.	M.P.
A	26/03/13	M.P.	M.P.

North

DRAWING STATUS	
DESIGN BY	M.P.
DRAWN BY	N.L.
FINAL APPROVAL	M.P.
SCALE: (on A4 Original)	1:5000

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PROJECT TITLE
LOT 26 DP 263356
ANEMBO STREET
MOSS VALE NSW

DRAWING TITLE
HISTORICAL AERIAL PHOTOS
1979 AND 1989

PROJECT NO.	SHEET NO.	REV
12000191	FIGURE 4	A

Plot Date: 23 April 2014 12:11:16 PM

CAD File Name: L:\12000191 Lot 126 DP 263356 Anembo Street, Moss Vale, NSW\Drawings\12000191_P01_FIG_REV C.dwg

1997

2006

0 25 50 75 100 125m

Scale: 1:5000 (A4 SHEET)

REV	DATE	BY	APP.
C	23/04/14	M.P.	M.P.
B	11/04/13	M.P.	M.P.
A	26/03/13	M.P.	M.P.

North

DRAWING STATUS	
DESIGN BY	M.P.
DRAWN BY	N.L.
FINAL APPROVAL	M.P.
SCALE: (on A4 Original)	1:5000

FINAL

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PROJECT TITLE
LOT 26 DP 263356
ANEMBO STREET
MOSS VALE NSW

DRAWING TITLE
HISTORICAL AERIAL PHOTOS 1997 AND 2006

PROJECT NO.	SHEET NO.	REV
12000191	FIGURE 5	A

Plot Date: 23 April 2014 12:11:30 PM

CAD File Name: L:\12000191 Lot 126 DP 263356 Anembo Street, Moss Vale, NSW\Drawings\12000191_P01_FIG_REV C.dwg

1.5 Adjacent Land Uses

Residential land is found to the north, west and east but land to the southwest and south is vacant recreationally-zoned land.

1.6 Site Condition and Environment

1.6.1 General Conditions

At the time of our site inspection (19th March 2013) the subject site was undeveloped and well vegetated (Figures 6 and 7). There is an area in the south east corner of the site that has obviously been quarried (Figures 7 and 8). This area is approximately 2,500 m^2 in size. The land surface near it is slightly disturbed.

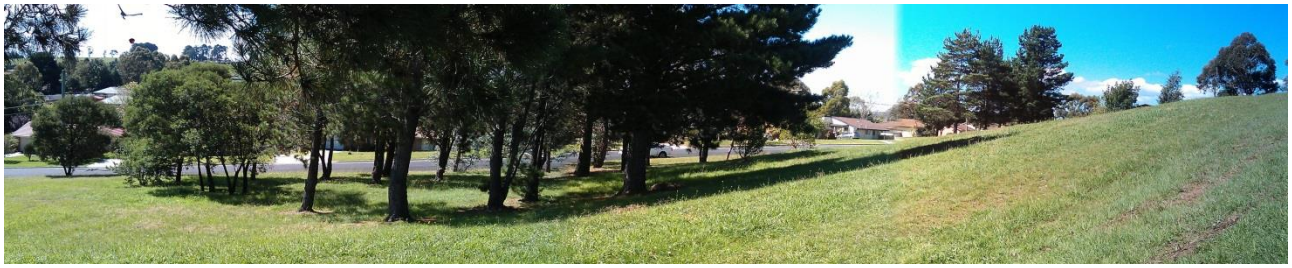

Figure 6 – View north across Anembo Street

Figure 7 – View East. Quarry site is on top right of photograph.

The remnants of old access tracks can be seen in the landform, both appear to have provided access to the quarry area. To the immediate southeast of the quarry is another (offsite) area that also appears to have been used as a quarry; the land here is significantly disturbed.

Figure 8 - Approximate area of old quarry and site disturbance.

1.6.2 Visible Signs of Contamination

There were no obvious signs of contamination or materials that could cause contamination on the subject site.

1.6.3 Topography

The subject site occupies a north and northwest facing side slope with the crest of the hill at the approximate location of the old quarry. Site gradients are generally moderate, ranging from 7 to 12 percent.

1.6.4 Fill Materials

There were no obvious signs of fill material; although minor earthworks (e.g. to form tracks) has occurred in the past.

1.6.5 Odours

There were no obvious signs of foul odours.

1.6.6 Flood Potential

The site is unlikely to be flood affected, although the Section 149 certificate says it could be.

1.7 Soils and Geology

The site is mapped on the Lower Mittagong Soil Landscape (SCA/DLWC, 2002), a residual soil landscape formed on shale and sandstone. Natural soils would consist of well-structured clay loam topsoil and light to medium clay subsoil.

NOTE: The Stage 2 site investigation showed the quarry area is actually on basalt, not shale or sandstone.

1.8 Site Conceptual Site Model

1.8.1 Contamination Risk Assessment

The subject site has had some earthmoving activity on it in about 1979. It appears that a small quarry was excavated at that time in the far south. It also appears there has been (probably un-approved) vehicular access to that quarry site during subsequent years, up to at least 1989. The site inspection suggests land immediately downslope of the quarry area might also be disturbed from its natural state.

Given the attraction that old quarries have for illegal Fly-Tipping we consider there is a risk that the quarry floor and land immediately downslope could be contaminated. It could also be that waste has been placed in the former quarry void.

1.8.2 Stage 1 Recommendation

We recommend a Stage 2 Contamination Assessment be undertaken of the areas identified in Section 1.8.1which total about 2,500 m^2. The Stage 2 Assessment should involve a surface and subsurface investigation by selectively located test pits. The aim would be to identify whether waste has been placed in either the quarry void or the quarry floor and/or land immediately downslope of it.

Should evidence of waste or fill be found, samples should be taken and sent for laboratory testing. The suite of contaminants targeted should include metals, PCBs, PAHs, asbestos, hydrocarbons and pesticides. Should levels of any contaminants from any sample be above the Health Investigation Levels (HILs) for Class A lands – *residential use with garden access* (NEPM (2013) then further investigation would be warranted.

2 Section 2 – Stage 2 Assessment

2.1 Introduction

Section 1 of this report represents a Stage 1 Contamination Assessment of Lot 126 DP 263356. The results and recommendations of that assessment are described in Section 1.8.2. Further to those recommendations, Strategic Environmental and Engineering Consulting (SEEC) have been commissioned by Wingecarribee Shire Council to prepare this Stage 2 Contamination Assessment. The aim of this Stage 2 Contamination Assessment is to identify (with a reasonable certainty) whether contamination is present in the area identified at risk (the old quarry area, Figure 8).This Assessment has been undertaken and documented following the requirements set out in *Guidelines for Consultants Reporting on Contaminated Sites* (NSW EPA, 2000) and considering the requirements of Schedules B1 and B2 of NEPM (2013).

2.2 Site Investigation

2.2.1 Introduction

A site investigation was done on 31st March 2014 under the supervision of SEEC Director, Mark Passfield. The investigation comprised of a walkover inspection of the general area identified in Figure 8 and the excavation of ten test pits by a 3.5 tonne tracked excavator equipped with a 450 mm bucket. The aims of the test pits were to:

- Identify whether fill or waste had been placed in the former quarry area (either in the void or in the base),
- Identify subsurface soil conditions and the presence of disturbed ground,
- To take soil samples for third party contaminant testing where waste, fill or disturbed ground was found/suspected.

2.2.2 Site Topography

The site investigation was concentrated in the area of the old quarry (Figure 8). This is an area of about 2,500 m^2 in the south of the site, adjoining residential property to the south. The site is about 65 m east to west and about 40 m north to south. The former quarry face forms a crescent shaped piece of land grading at about 50-60 percent. At the foot of the quarry face is a flattish area that has slightly enclosed drainage. The land rises to the north and then falls to the north towards Anembo Street.

2.2.3 Surface Conditions

The quarry area is obviously disturbed as weeds (particularly Fennel) grows across the quarry face. The base of the quarry is covered with grass. Some minor waste was encountered across the whole area, but it was minor. There were bricks, plastics, concrete, wood, cement pipes and a mattress found at the surface. There are only a few trees, most

notably three large pines in the east. Common basalt cobbles were encountered across much of the quarry face, a few were found at the base.

2.2.4 Subsurface Conditions

Ten test pits were excavated. Their locations are shown in Figure 9. Five test pits were dug on elevated land (the face of the quarry) and five were dug on land at the base of the quarry face (i.e. the quarry floor) and just north of the quarry floor. The test pit logs are given in Appendix 1.

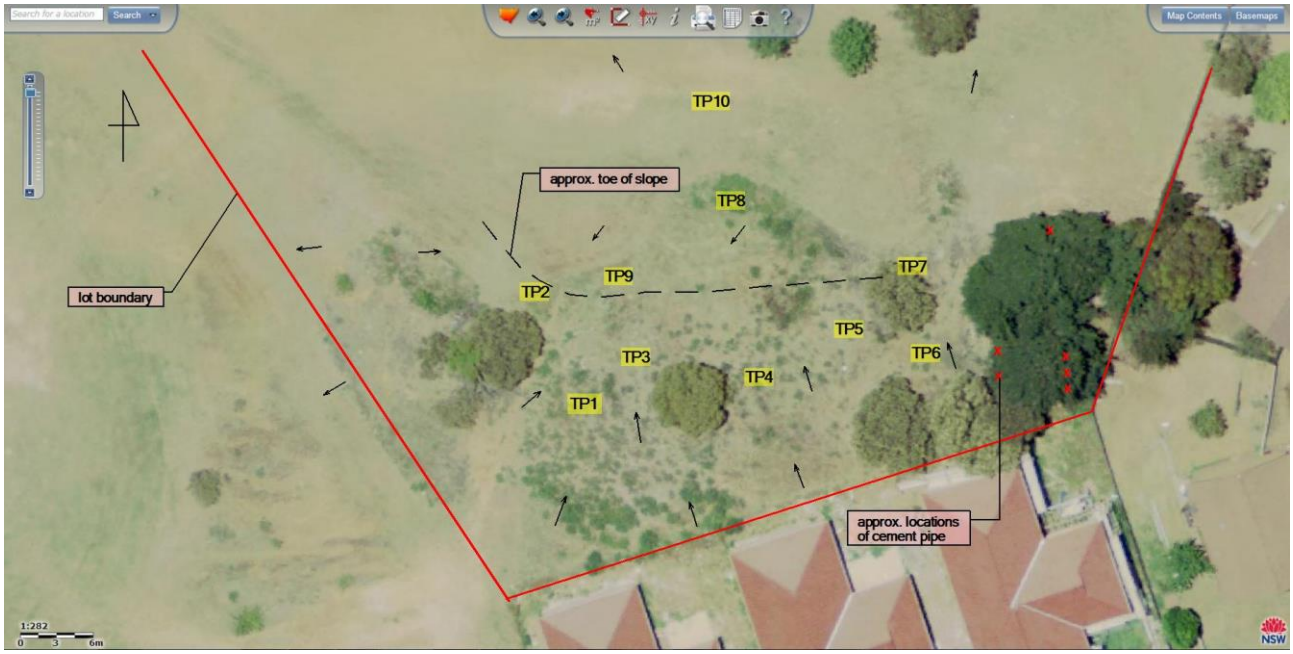

Figure 9 - Locations of test pits, cement piping and local slope directions.

In summary:

- All the test pits dug on the quarry face showed a profile of naturally-occurring basalt in the form of cobbles (diameter up to about 250 mm) within a matrix of clay soil. The cobbles formed about 75-80% of the mass, overburden (clay soil) was not common but was found in TP4 and TP5. Only minor waste was identified at the ground surface.
- The test pits dug at the quarry floor and immediately down slope of it (TP7 to TP10) showed a disturbed profile but the materials were generally those found on the site (cobbles, clay soil). Only TP7 had any debris within the soil mass at depth (bricks and concrete), although it was minor.
- Free water was absent except in TP2 where significant water was encountered within a gravelly layer at about 1 m depth.
- No odours, abnormal seepage or greasy/oily films were encountered in any test pit.

2.2.5 Soil Sampling

Since the quarry was last used there has been some disposal of waste products (bricks, concrete, plastic, wood, steel and a mattress). However, the total quantity of these materials present at the time of inspection was minor. Only TP7 contained infrequent pieces of the same type of material below the ground surface, the majority of such items are located on the surface.

However, it was considered possible that waste could have been placed at the ground surface in the past and since removed. If so, it was considered possible that during that time contaminants could have entered the soils. Therefore, we undertook soil sampling and testing on a series of soil samples taken from the base of the quarry. Sampling was not considered justified on the quarry face as the subsurface profiles showed soil/rock there was *insitu* material.

Soil samples were taken in:

- TP2 300 mm and 800 mm
- TP7 300 mm and 800 mm
- TP8 300 mm[1]
- TP9 100 mm[1]
- TP10 200 mm[1]

Samples were taken directly from clods of soil in the excavator bucket taking care to note at what depth the clods came from. They were immediately placed in sealed glass jars and chilled within 2 hours. The samples were kept chilled and transferred to the laboratory under a chain of custody (COC). No duplicates were taken as the total number of samples was less than 10.

Each sample was tested for a suite of contaminants designed to allow comparison to the Health Investigation Levels (HILs) for the contaminants considered possible, as given in Table 1(A) of NEPM (2013). This suite includes:

- Polycyclic aromatic hydrocarbons (PAHs)
- Phenol
- Hydrocarbons
- Metals - As, Be, B, Cd, Co, Cr, Cu, Pb, Hg, Mn, Ni, Se, Zn
- Organochlorine Pesticides
- Acid herbicides
- PCBs

[1] Only near-surface samples were taken as the profile was only disturbed near the surface.

The results are given in Appendix 2. In all cases, levels of all contaminants except metals were undetectable. In the case of metals, whilst most were detectable, the concentrations were well below the HIL for Class A lands – *residential use with garden access*.

A sample was also taken of a piece of cement pipe, one of several pieces of pipe found at the surface near the pine trees (Figure 9). The sample was tested for asbestos; no asbestos was detected.

2.2.6 Stage 2 Site Characterisation

The site was used as a small quarry until the 1980's. It is located on basalt bedrock which is hard rock suitable for a number of applications. The fragmented nature of the bedrock made it reasonably easy to excavate and sieve to yield a useful product. The steep quarry face, although covered in weeds and having some minor debris on the surface, is formed of natural *insitu* material (mainly basalt cobbles in a soil matrix, sometimes with overburden).

Test Pits TP6 to TP10 showed that the base of the quarry has been disturbed as soils and rock were presumably moved around during quarry operations. However, only TP7 had any deleterious material below the ground surface, the other test pits showed the near - surface fill layer to be formed of locally derived soil and rock.

Soil testing showed none of the Health Investigation Levels (HILs) for Class A lands (*residential use with garden access)* were exceeded and so, within the limitations noted in Section 3, the site is considered uncontaminated. A few pieces of cement pipe were found at the surface east of the quarry. Testing showed asbestos was not present.

2.3 Summary and Conclusion

The Stage 2 Assessment concentrated on an area identified in the Stage 1 Preliminary Assessment to be at risk of contamination. However, the Stage 2 Assessment has shown that, within the limitations noted in Section 3, the site is considered uncontaminated and suitable for its proposed use as residential land.

The pieces of debris that are currently onsite should be removed and may be disposed at the local landfill.

3 Limitations of this report

By necessity, this report describes the results and analysis of a limited site investigation. The investigation has been designed to sufficiently characterise the site as per the applicable Government Guidelines (EPA, 2000 and NEPM, 2013). The sampling density is capable of detecting a hot spot of 'reasonable size' where' reasonable size' means *the largest area of contamination that could be dealt with if it were not identified during the investigation but was discovered only after work on the development began*. Conformance to these Guidelines ensures the risk of contamination can be taken as appropriately low.

4 References

- EPA (2000). *Guidelines for Consultants Reporting on Contaminated Sites.* NSW Environment Protection Agency, Sydney, NSW

- NEPM (2013). *National Environment Protection Measure*.

- NSW Dept. Urban Affairs and Planning Environment Protection Authority (1998). *Managing Land Contamination, Planning Guidelines, SEPP55-Remediation of Land.*

- SCA/DLWC (2002) *Soil Landscapes of the Sydney Drinking Water Hydrological Catchments.*

5 Appendices

5.1 Appendix 1 – Soil Test Pit Logs (over-page

SEEC

ENGINEERING LOG - EXCAVATIONS

		Project Number:	12000191
Client	Wingecarribee Shire Council	Date excavated	31/03/2014
Project	Anembo Street	Logged By	MVP
Location	Old Quarry	Slope %	

Excavation Dimensions — Test Pit No. TP1

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
				Basalt cobbles in minor (30%) soil matrix. Cobbles commonly 75-150 mm			
		1.0 m		Refusal at 1,000mm			
		2.0 m					

Excavation Dimensions — Test Pit No. TP2

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
							Disturbed ground
				Mixture of topsoil, rubble, clay loam subsoil, gravel.			Minor debris at surface
	DS						
	DS						
		1.0 m					
				Significant water inflow	Wet		
				Test pit terminated - too wet to continue			
		2.0 m					

Key

Method	
N	natural exposure
A	hand auger
ES	shovel
EB	backhoe
ED	bulldozer
EG	grader
G	gully
C	core sample
O	other

Sampling / Testing	
HP	hand penetrometer
DCP	dynamic cone penetrometer
O	other
DS	Disturbed sample

Moisture Condition	
D	dry
MM	moderately moist
M	moist
W	wet

The classification symbols and soil descriptions are based on the Unified Soil Classification System (Corps of Engineers, 1953) and AS 1726:1993, Geotechnical Site Investigations

Consistency / Strength			
VS	very soft	Fb	friable
S	soft	VL	very loose
F	firm	L	loose
St	stiff	MD	med. dense
VSt	very stiff	D	dense
H	hard	VD	very dense

Comments

SEEC

ENGINEERING LOG - EXCAVATIONS

		Project Number:	12000191
Client	Wingecarribee Shire Council	Date excavated	31/03/2014
Project	Anembo Street	Logged By	MVP
Location	Old Quarry	Slope %	

Excavation Dimensions — Test Pit No. TP3

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
				Basalt cobbles in minor (30%) soil matrix. Cobbles commonly 75-150 mm			Natural
		1.0 m		Refusal at 1,000mm			
		2.0 m					

Excavation Dimensions — Test Pit No. TP4

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
				Red clay with basalt cobbles. Becomes very cobbley at 800 mm			Natural
		1.0 m		Predominantly cobbles in minor soil matrix			
		2.0 m		Test pit terminated on basalt bedrock			

Key

Method	
N	natural exposure
A	hand auger
ES	shovel
EB	backhoe
ED	bulldozer
EG	grader
G	gully
C	core sample
O	other

Sampling / Testing	
HP	hand penetrometer
DCP	dynamic cone penetrometer
O	other

Moisture Condition	
D	dry
MM	moderately moist
M	moist
W	wet

The classification symbols and soil descriptions are based on the Unified Soil Classification System (Corps of Engineers, 1953) and AS 1726:1993, Geotechnical Site Investigations

Consistency / Strength			
VS	very soft	Fb	friable
S	soft	VL	very loose
F	firm	L	loose
St	stiff	MD	med. dense
VSt	very stiff	D	dense
H	hard	VD	very dense

Comments

SEEC

ENGINEERING LOG - EXCAVATIONS

		Project Number:	12000191
Client	Wingecarribee Shire Council	Date excavated	31/03/2014
Project	Anembo Street	Logged By	MVP
Location	Old Quarry	Slope %	

Excavation Dimensions — Test Pit No. TP5

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
				Red clay with basalt cobbles. Becomes very cobbley at 800 mm			Natural
		1.0 m		Predominantly cobbles in minor soil matrix			
		2.0 m		Test pit terminated on basalt bedrock			

Excavation Dimensions — Test Pit No. TP6

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
		1.0 m		Basalt cobbles in minor (30%) soil matrix. Cobbles commonly 75-150 mm			Natural
		2.0 m		Refusal at 1,000mm			

Key

Method	
N	natural exposure
A	hand auger
ES	shovel
EB	backhoe
ED	bulldozer
EG	grader
G	gully
C	core sample
O	other

Sampling / Testing	
HP	hand penetrometer
DCP	dynamic cone penetrometer
O	other

Moisture Condition	
D	dry
MM	moderately moist
M	moist
W	wet

The classification symbols and soil descriptions are based on the Unified Soil Classification System (Corps of Engineers, 1953) and AS 1726:1993, Geotechnical Site Investigations

Consistency / Strength			
VS	very soft	Fb	friable
S	soft	VL	very loose
F	firm	L	loose
St	stiff	MD	med. dense
VSt	very stiff	D	dense
H	hard	VD	very dense

Comments

SEEC

ENGINEERING LOG - EXCAVATIONS

		Project Number:	12000191
Client	Wingecarribee Shire Council	Date excavated	31/03/2014
Project	Anembo Street	Logged By	MVP
Location	Old Quarry	Slope %	

Excavation Dimensions — Test Pit No. TP7

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
	DS			Mixture clay and clay loam. Slab of concrete on surface, minor plastic, minor wood.			Fill
	DS						
		1.0 m					
				Red brown clay			Natural
		2.0 m					

Excavation Dimensions — Test Pit No. TP8

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
	DS			Basalt cobbles and minor clay matrix			Natural
		1.0 m					
				TP terminated on bedrock.			
		2.0 m					

Key

Method	
N	natural exposure
A	hand auger
ES	shovel
EB	backhoe
ED	bulldozer
EG	grader
G	gully
C	core sample
O	other

Sampling / Testing	
HP	hand penetrometer
DCP	dynamic cone penetrometer
O	other

Moisture Condition	
D	dry
MM	moderately moist
M	moist
W	wet

The classification symbols and soil descriptions are based on the Unified Soil Classification System (Corps of Engineers, 1953) and AS 1726:1993, Geotechnical Site Investigations

Consistency / Strength			
VS	very soft	Fb	friable
S	soft	VL	very loose
F	firm	L	loose
St	stiff	MD	med. dense
VSt	very stiff	D	dense
H	hard	VD	very dense

Comments

SEEC

ENGINEERING LOG - EXCAVATIONS

		Project Number:	12000191
Client	Wingecarribee Shire Council	Date excavated	31/03/2014
Project	Anembo Street	Logged By	MVP
Location	Old Quarry	Slope %	

Excavation Dimensions — Test Pit No. TP9

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
	DS			0-150. Brown clay loam	M		Natural
				150-700 Orange brown light clay			
				Basalt bedrock at 700 mm			Highly weathered.
		1.0 m					
		2.0 m					

Excavation Dimensions — Test Pit No. TP10

Method	Sampling	Depth (m)	Layer Change	Description	Moisture	Consistency /Strength	Remarks
	DS			Basalt cobbles in minor soil.			Fill , locally sourced.
				Mottled yellow and grey clay, minor basalt cobbles.			
		1.0 m					
		2.0 m					

Key

Method		Sampling / Testing	
N	natural exposure	HP	hand penetrometer
A	hand auger	DCP	dynamic cone penetrometer
ES	shovel	O	other
EB	backhoe	DS	Disturbed sample
ED	bulldozer	**Moisture Condition**	
EG	grader	D	dry
G	gully	MM	moderately moist
C	core sample	M	moist
O	other	W	wet

The classification symbols and soil descriptions are based on the Unified Soil Classification System (Corps of Engineers, 1953) and AS 1726:1993, Geotechnical Site Investigations

Consistency / Strength			
VS	very soft	Fb	friable
S	soft	VL	very loose
F	firm	L	loose
St	stiff	MD	med. dense
VSt	very stiff	D	dense
H	hard	VD	very dense

Comments

5.2 Appendix 2 – Laboratory Testing Results (over-page)

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD

ABN 36 088 095 112

Our ref : ASET38263/ 41443 / 1 - 1
Your ref :413855
NATA Accreditation No: 14484

4 April 2014

Eurofins MGT
Unit F3, Building F, 16, Mars Road
Lane Cove
NSW 2066

Attn: Dr Robert Symons

Dear Robert

Asbestos Identification
This report presents the results of one sample, forwarded by Eurofins MGT on 3 April 2014, for analysis for asbestos.

1.Introduction: One sample forwarded was examined and analysed for the presence of asbestos.

2. Methods: The sample was examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy in conjunction with Dispersion Staining method **(Safer Environment Method 1.)**

3. Results: **Sample No. 1. ASET38263 / 41443 / 1. 413855 - ASBESTOS PIPE - Ap01610.**
Approx dimensions 6.2 cm x 4.2 cm x 1.2 cm
The sample consisted of a fragment of a fibre cement material containing organic fibres.
No asbestos detected.

Analysed and reported by,

Mahen De Silva. BSc, MSc, Grad Dip (Occ Hyg)
Occupational Hygienist / Approved Identifier.
Approved Signatory

Accredited for compliance with ISO/IEC 17025.

eurofins | mgt

Certificate of Analysis

SEEC Morse McVey
Suites 7 and 8, 68-70 Station St
Bowral
NSW 2576

Attention: **Mark Passfield**

Report **413855-S**
Client Reference ANEMBO ST MOSS VALE 12000191
Received Date Apr 02, 2014

Client Sample ID **Sample Matrix** **Eurofins | mgt Sample No.** **Date Sampled** Test/Reference	LOR	Unit	**TP2 300** **Soil** **S14-Ap01603** **Mar 31, 2014**	**TP2 800** **Soil** **S14-Ap01604** **Mar 31, 2014**	**TP7 300** **Soil** **S14-Ap01605** **Mar 31, 2014**	**TP7 800** **Soil** **S14-Ap01606** **Mar 31, 2014**
Atrazine	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bifenthrin*	2	mg/kg	< 2	< 2	< 2	< 2
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Cyanide (free)	1	mg/kg	< 1	< 1	< 1	< 1
% Moisture	0.1	%	30	24	20	19
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	1.2	1.2	1.2
2-Fluorobiphenyl (surr.)	1	%	106	102	101	104
p-Terphenyl-d14 (surr.)	1	%	130	125	123	126
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PCB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibutylchlorendate (surr.)	1	%	85	83	85	86

Client Sample ID			TP2 300	TP2 800	TP7 300	TP7 800
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins | mgt Sample No.			S14-Ap01603	S14-Ap01604	S14-Ap01605	S14-Ap01606
Date Sampled			Mar 31, 2014	Mar 31, 2014	Mar 31, 2014	Mar 31, 2014
Test/Reference	LOR	Unit				
Organophosphorus Pesticides (OP)						
Chlorpyrifos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
NEPM 2013 Acid Herbicides						
Picloram	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
2.4-D	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2.4.5-T	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
MCPA	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
MCPB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Mecoprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Warfarin (surr.)	1	%	94	92	90	88
NEPM 2013 Organochlorine Pesticides						
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Mirex	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	1	mg/kg	< 1	< 1	< 1	< 1
Dibutylchlorendate (surr.)	1	%	80	84	91	93
Tetrachloro-m-xylene (surr.)	1	%	141	145	133	117
NEPM 2013 Phenols						
2-Methylphenol (o-Cresol)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
3&4-Methylphenol (m&p-Cresol)	1	mg/kg			< 1	< 1
Pentachlorophenol	1	mg/kg			< 1	< 1
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenol-d5 (surr.)	1	%			86	83
Heavy Metals						
Arsenic	2	mg/kg	4.6	2.0	5.7	3.1
Beryllium	2	mg/kg	2.4	< 2	< 2	< 2
Boron	10	mg/kg	< 10	< 10	< 10	< 10
Cadmium	0.4	mg/kg	0.9	0.6	0.6	0.4
Cobalt	5	mg/kg	29	20	< 5	7.1
Copper	5	mg/kg	21	22	16	16
Lead	5	mg/kg	13	7.0	12	13
Manganese	5	mg/kg	1000	570	61	180
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	0.07
Nickel	5	mg/kg	37	34	6.6	27
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Zinc	5	mg/kg	110	41	15	23

Client Sample ID			TP8 300	TP9 100	TP10 200	ASBESTOS PIPE
Sample Matrix			**Soil**	**Soil**	**Soil**	**Other**
Eurofins | mgt Sample No.			**S14-Ap01607**	**S14-Ap01608**	**S14-Ap01609**	**S14-Ap01610**
Date Sampled			**Mar 31, 2014**	**Mar 31, 2014**	**Mar 31, 2014**	**Mar 31, 2014**
Test/Reference	LOR	Unit				
Atrazine	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Bifenthrin*	2	mg/kg	< 2	< 2	< 2	-
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	-
Cyanide (free)	1	mg/kg	< 1	< 1	< 1	-
% Moisture	0.1	%	25	30	17	-
Asbestos			-	-	-	see attached
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene[N07]	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g.h.i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a.h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (lower bound)*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound)*	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound)*	0.5	mg/kg	1.2	1.2	1.2	-
2-Fluorobiphenyl (surr.)	1	%	102	96	89	-
p-Terphenyl-d14 (surr.)	1	%	125	116	110	-
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1232	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1242	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1248	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1254	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aroclor-1260	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PCB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibutylchlorendate (surr.)	1	%	86	86	86	-
Organophosphorus Pesticides (OP)						
Chlorpyrifos	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
NEPM 2013 Acid Herbicides						
Picloram	0.01	mg/kg	< 0.01	< 0.01	< 0.01	-
2.4-D	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2.4.5-T	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
MCPA	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
MCPB	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Mecoprop	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Warfarin (surr.)	1	%	95	88	98	-

Client Sample ID			TP8 300	TP9 100	TP10 200	ASBESTOS PIPE
Sample Matrix			**Soil**	**Soil**	**Soil**	**Other**
Eurofins | mgt Sample No.			**S14-Ap01607**	**S14-Ap01608**	**S14-Ap01609**	**S14-Ap01610**
Date Sampled			**Mar 31, 2014**	**Mar 31, 2014**	**Mar 31, 2014**	**Mar 31, 2014**
Test/Reference	LOR	Unit				
NEPM 2013 Organochlorine Pesticides						
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Mirex	0.01	mg/kg	< 0.01	< 0.01	< 0.01	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Toxaphene	1	mg/kg	< 1	< 1	< 1	-
Dibutylchlorendate (surr.)	1	%	85	93	82	-
Tetrachloro-m-xylene (surr.)	1	%	133	137	109	-
NEPM 2013 Phenols						
2-Methylphenol (o-Cresol)	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
3&4-Methylphenol (m&p-Cresol)	1	mg/kg	< 1	< 1	< 1	-
Pentachlorophenol	1	mg/kg	< 1	< 1	< 1	-
Phenol	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenol-d5 (surr.)	1	%	82	83	80	-
Heavy Metals						
Arsenic	2	mg/kg	< 2	< 2	2.9	-
Beryllium	2	mg/kg	< 2	< 2	2.4	-
Boron	10	mg/kg	< 10	< 10	< 10	-
Cadmium	0.4	mg/kg	0.6	0.8	0.8	-
Cobalt	5	mg/kg	25	42	38	-
Copper	5	mg/kg	22	29	29	-
Lead	5	mg/kg	7.1	10	< 5	-
Manganese	5	mg/kg	620	1200	1100	-
Mercury	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Nickel	5	mg/kg	42	43	69	-
Selenium	2	mg/kg	< 2	2.2	< 2	-
Zinc	5	mg/kg	60	68	66	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.
A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding Methyl Mercury/PBDE			
Atrazine	Melbourne	Apr 07, 2014	14 Day
- Method: LM-LTM-ORG-2900			
Bifenthrin*	Melbourne	Apr 07, 2014	14 Day
- Method: MGT Method 120 - Pyrethroids by HPLC			
Chromium (hexavalent)	Sydney	Apr 08, 2014	28 Day
- Method: E043 /E057 Total Speciated Chromium			
Cyanide (free)	Sydney	Apr 08, 2014	14 Day
- Method: E040 /E054 Free Cyanide			
Polycyclic Aromatic Hydrocarbons	Sydney	Apr 09, 2014	14 Day
- Method: E007 Polyaromatic Hydrocarbons (PAH)			
Polychlorinated Biphenyls (PCB)	Sydney	Apr 09, 2014	28 Day
- Method: E013 Polychlorinated Biphenyls (PCB)			
Organophosphorus Pesticides (OP)	Sydney	Apr 09, 2014	14 Day
- Method: E014 Organophosphorus Pesticides (OP)			
NEPM 2013 Acid Herbicides	Melbourne	Apr 07, 2014	14 Day
- Method: MGT 530			
NEPM 2013 Phenols	Sydney	Apr 08, 2014	14 Day
- Method: E008 Speciated Phenols			
NEPM 2013 Metals : Metals M12	Sydney	Apr 08, 2014	28 Day
- Method: LTM-MET-3040_R0 TOTAL AND DISSOLVED METALS AND MERCURY IN WATERS BY ICP-MS			
% Moisture	Sydney	Apr 08, 2014	28 Day
- Method: E005 Moisture Content			
NEPM 2013 Organochlorine Pesticides	Melbourne	Apr 07, 2014	14 Day
- Method: USEPA 8081 Organochlorine Pesticides			

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Company Name:	SEEC Morse McVey	**Order No.:**	12000191	**Received:**	Apr 2, 2014 9:00 AM
Address:	Suites 7 and 8, 68-70 Station St Bowral NSW 2576	**Report #:**	413855	**Due:**	Apr 9, 2014
		Phone:	02 4862 1633	**Priority:**	5 Day
		Fax:	02 4862 3088	**Contact Name:**	Mark Passfield
Client Job No.:	ANEMBO ST MOSS VALE 12000191				

Eurofins | mgt Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	NEPM 2013 Organochlorine Pesticides	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding
Laboratory where analysis is conducted								
Melbourne Laboratory - NATA Site # 1254 & 14271							X	
Sydney Laboratory - NATA Site # 18217					X			X
Brisbane Laboratory - NATA Site # 20794								
External Laboratory						X		
Sample ID	**Sample Date**	**Sampling Time**	**Matrix**	**LAB ID**				
TP2 300	Mar 31, 2014		Soil	S14-Ap01603	X		X	X
TP2 800	Mar 31, 2014		Soil	S14-Ap01604	X		X	X
TP7 300	Mar 31, 2014		Soil	S14-Ap01605	X		X	X
TP7 800	Mar 31, 2014		Soil	S14-Ap01606	X		X	X
TP8 300	Mar 31, 2014		Soil	S14-Ap01607	X		X	X
TP9 100	Mar 31, 2014		Soil	S14-Ap01608	X		X	X
TP10 200	Mar 31, 2014		Soil	S14-Ap01609	X		X	X
ASBESTOS PIPE	Mar 31, 2014		Other	S14-Ap01610		X		

Eurofins | mgt Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

ug/l: micrograms per litre

ppb: Parts per billion

org/100ml: Organisms per 100 millilitres

MPN/100mL: Most Probable Number of organisms per 100 millilitres

mg/l: milligrams per litre

ppm: Parts per million

%: Percentage

NTU: Units

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within
TEQ	Toxic Equivalency Quotient

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
4. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling.Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " -" in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Atrazine	mg/kg	< 0.2			0.2	Pass	
Bifenthrin*	mg/kg	< 2			2	Pass	
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (free)	mg/kg	< 1			1	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g.h.i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a.h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1.2.3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides (OP)							
Chlorpyrifos	mg/kg	< 0.5			0.5	Pass	
Method Blank							
NEPM 2013 Acid Herbicides							
Picloram	mg/kg	< 0.01			0.01	Pass	
2.4-D	mg/kg	< 0.5			0.5	Pass	
2.4.5-T	mg/kg	< 0.5			0.5	Pass	
MCPA	mg/kg	< 0.5			0.5	Pass	
MCPB	mg/kg	< 0.5			0.5	Pass	
Mecoprop	mg/kg	< 0.5			0.5	Pass	
Method Blank							
NEPM 2013 Organochlorine Pesticides							
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
4.4'-DDD	mg/kg	< 0.05			0.05	Pass	
4.4'-DDE	mg/kg	< 0.05			0.05	Pass	
4.4'-DDT	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Chromium (hexavalent)	%	102			70-130	Pass	
Cyanide (free)	%	85			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	112			70-130	Pass	
Acenaphthylene	%	112			70-130	Pass	
Anthracene	%	108			70-130	Pass	
Benz(a)anthracene	%	109			70-130	Pass	
Benzo(a)pyrene	%	80			70-130	Pass	
Benzo(b&j)fluoranthene	%	79			70-130	Pass	
Benzo(g.h.i)perylene	%	70			70-130	Pass	
Benzo(k)fluoranthene	%	87			70-130	Pass	
Chrysene	%	110			70-130	Pass	
Dibenz(a.h)anthracene	%	78			70-130	Pass	
Fluoranthene	%	112			70-130	Pass	
Fluorene	%	112			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	73			70-130	Pass	
Naphthalene	%	112			70-130	Pass	
Phenanthrene	%	101			70-130	Pass	
Pyrene	%	108			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	90			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides (OP)							
Chlorpyrifos	%	97			70-130	Pass	
LCS - % Recovery							
NEPM 2013 Acid Herbicides							
Picloram	%	79			70-130	Pass	
2.4-D	%	92			70-130	Pass	
2.4.5-T	%	91			70-130	Pass	
MCPA	%	92			70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
MCPB	%	82			70-130	Pass	
Mecoprop	%	92			70-130	Pass	
LCS - % Recovery							
NEPM 2013 Organochlorine Pesticides							
Endosulfan sulphate	%	114			70-130	Pass	
4.4'-DDD	%	111			70-130	Pass	
4.4'-DDE	%	93			70-130	Pass	
4.4'-DDT	%	126			70-130	Pass	
Aldrin	%	102			70-130	Pass	
Dieldrin	%	107			70-130	Pass	
Endosulfan I	%	97			70-130	Pass	
Endosulfan II	%	103			70-130	Pass	
Endrin	%	109			70-130	Pass	
Heptachlor	%	111			70-130	Pass	
Hexachlorobenzene	%	114			70-130	Pass	
Methoxychlor	%	103			70-130	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	90			70-130	Pass	
Beryllium	%	92			70-130	Pass	
Boron	%	89			70-130	Pass	
Cadmium	%	85			70-130	Pass	
Cobalt	%	95			70-130	Pass	
Copper	%	104			70-130	Pass	
Lead	%	95			70-130	Pass	
Manganese	%	96			70-130	Pass	
Mercury	%	82			70-130	Pass	
Nickel	%	96			70-130	Pass	
Selenium	%	86			70-130	Pass	
Zinc	%	90			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Cyanide (free)	S14-Ap01603	CP	%	85			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S14-Ap01010	NCP	%	94			70-130	Pass	
Acenaphthylene	S14-Ap01010	NCP	%	88			70-130	Pass	
Anthracene	S14-Ap01010	NCP	%	88			70-130	Pass	
Benz(a)anthracene	S14-Ap01010	NCP	%	91			70-130	Pass	
Benzo(a)pyrene	S14-Ap01010	NCP	%	85			70-130	Pass	
Benzo(b&j)fluoranthene	S14-Ap01010	NCP	%	97			70-130	Pass	
Benzo(g.h.i)perylene	S14-Ap01010	NCP	%	81			70-130	Pass	
Benzo(k)fluoranthene	S14-Ap01010	NCP	%	85			70-130	Pass	
Chrysene	S14-Ap01010	NCP	%	94			70-130	Pass	
Dibenz(a.h)anthracene	S14-Ap01010	NCP	%	81			70-130	Pass	
Fluoranthene	S14-Ap01010	NCP	%	95			70-130	Pass	
Fluorene	S14-Ap01010	NCP	%	91			70-130	Pass	
Indeno(1.2.3-cd)pyrene	S14-Ap01010	NCP	%	77			70-130	Pass	
Naphthalene	S14-Ap01010	NCP	%	91			70-130	Pass	
Phenanthrene	S14-Ap01010	NCP	%	87			70-130	Pass	
Pyrene	S14-Ap01010	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Aroclor-1260	S14-Ap05076	NCP	%	104			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides (OP)				Result 1					
Chlorpyrifos	S14-Ma26841	NCP	%	95			70-130	Pass	
Spike - % Recovery									
NEPM 2013 Acid Herbicides				Result 1					
Picloram	S14-Ap01603	CP	%	68			70-130	Fail	Q08
2.4-D	S14-Ap01603	CP	%	81			70-130	Pass	
MCPA	S14-Ap01603	CP	%	82			70-130	Pass	
MCPB	S14-Ap01603	CP	%	66			70-130	Fail	Q08
Spike - % Recovery									
NEPM 2013 Organochlorine Pesticides				Result 1					
Endosulfan sulphate	M14-Ap05408	NCP	%	92			70-130	Pass	
4.4'-DDD	M14-Ap05408	NCP	%	94			70-130	Pass	
4.4'-DDE	M14-Ap05408	NCP	%	96			70-130	Pass	
4.4'-DDT	M14-Ap05408	NCP	%	102			70-130	Pass	
Aldrin	M14-Ap05408	NCP	%	88			70-130	Pass	
Dieldrin	M14-Ap05408	NCP	%	113			70-130	Pass	
Endosulfan I	M14-Ap05408	NCP	%	87			70-130	Pass	
Endosulfan II	M14-Ap05408	NCP	%	88			70-130	Pass	
Endrin	M14-Ap05408	NCP	%	87			70-130	Pass	
Heptachlor	M14-Ap05408	NCP	%	94			70-130	Pass	
Hexachlorobenzene	M14-Ap05408	NCP	%	100			70-130	Pass	
Methoxychlor	M14-Ap05408	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S14-Ap05193	NCP	%	78			70-130	Pass	
Beryllium	S14-Ap05824	NCP	%	96			70-130	Pass	
Boron	S14-Ap05824	NCP	%	85			70-130	Pass	
Cadmium	S14-Ap06880	NCP	%	88			70-130	Pass	
Cobalt	S14-Ap05824	NCP	%	92			70-130	Pass	
Copper	S14-Ap06880	NCP	%	93			70-130	Pass	
Lead	S14-Ap06880	NCP	%	100			70-130	Pass	
Mercury	S14-Ap05824	NCP	%	74			70-130	Pass	
Nickel	S14-Ap06880	NCP	%	93			70-130	Pass	
Selenium	S14-Ap05824	NCP	%	90			70-130	Pass	
Zinc	S14-Ap06880	NCP	%	89			70-130	Pass	
Test	**Lab Sample ID**	**QA Source**	**Units**	**Result 1**			**Acceptance Limits**	**Pass Limits**	**Qualifying Code**
Duplicate									
				Result 1	Result 2	RPD			
Atrazine	M14-Ap05295	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Bifenthrin*	S14-Ap01603	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Cyanide (free)	S14-Ap01603	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g.h.i)perylene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	

Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Dibenz(a.h)anthracene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S14-Ap01010	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD			
Aroclor-1016	S14-Ap05076	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1232	S14-Ap05076	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1242	S14-Ap05076	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1248	S14-Ap05076	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1254	S14-Ap05076	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Aroclor-1260	S14-Ap05076	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides (OP)				Result 1	Result 2	RPD			
Chlorpyrifos	S14-Ma26841	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
NEPM 2013 Acid Herbicides				Result 1	Result 2	RPD			
Picloram	S14-Ap01603	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass	
2.4-D	S14-Ap01603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
2.4.5-T	S14-Ap01603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
MCPA	S14-Ap01603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
MCPB	S14-Ap01603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Mecoprop	S14-Ap01603	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
NEPM 2013 Organochlorine Pesticides				Result 1	Result 2	RPD			
Endosulfan sulphate	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Mirex	M14-Ap04584	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDD	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Chlordanes - Total	M14-Ap05408	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Dieldrin	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan II	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endrin	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Heptachlor	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Hexachlorobenzene	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Methoxychlor	M14-Ap05408	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Toxaphene	M14-Ap05408	NCP	mg/kg	< 1	< 1	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S14-Ap05824	NCP	mg/kg	3.1	3.3	5.0	30%	Pass	
Beryllium	S14-Ap05824	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	S14-Ap05824	NCP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	S14-Ap06880	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Cobalt	S14-Ap05824	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S14-Ap06880	NCP	mg/kg	5.9	5.8	2.0	30%	Pass	
Lead	S14-Ap06880	NCP	mg/kg	< 5	5.4	9.0	30%	Pass	
Manganese	S14-Ap05824	NCP	mg/kg	110	85	29	30%	Pass	
Mercury	S14-Ap05824	NCP	mg/kg	1.5	1.6	19	30%	Pass	

Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Nickel	S14-Ap06880	NCP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	S14-Ap05824	NCP	mg/kg	< 2	< 2	<1	30%	Pass	
Zinc	S14-Ap06880	NCP	mg/kg	< 5	< 5	<1	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Qualifier Codes/Comments

Code	Description
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference

Authorised By

Jean Heng	Client Services
Bob Symons	Senior Analyst-Inorganic (NSW)
James Norford	Senior Analyst-Metal (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)
Stacey Jenkins	Senior Analyst-Organic (VIC)

Dr. Bob Symons

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request